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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,424	12/10/2003	Makoto Oikawa	1232-5227	2119

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MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER
KHAN, USMAN A

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
07/31/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOPatentCommunications@Morganfinnegan.com
Shopkins@Morganfinnegan.com
jmedina@Morganfinnegan.com

Office Action Summary	Application No.	Applicant(s)	
	10/733,424	OIKAWA, MAKOTO	
	Examiner	Art Unit	
	USMAN KHAN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2003 and 24 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed on 04/10/2008 with respect to claims 1 - 2 have been considered but are moot in view of the new ground(s) of rejection. Also, claims 3 and 5 are rejected as discussed below.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 - 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunekawa et al. (US patent No. 4,647,174) in view of Murayama (US patent No. 6,192,163).

Regarding **claim 1,** Tsunekawa et al. teaches a focus detection device (column 2 lines 50 – 57) comprising: a solid-state image sensing device including a first photoelectric conversion element array which photoelectrically converts a first light beam passing through a first area of an exit pupil of a photographing optical system (figure 1 item SA1, SA2, SA3, …, SA7 each receives light from PE1 of lens PE), and a second photoelectric conversion element array which photoelectrically converts a second light beam passing through a second area of the exit pupil which is different

from the first area (figure 1 item SB1, SB2, SB3, …, SB7 each receives light from PE2 of lens PE),

wherein every two photoelectric conversion elements of said first and second photoelectric conversion element arrays include a microlens positioned such that the first light beam passing through the first area of the exit pupil and the second light beam passing through the second area of the exit pupil focuses on a first and a second photoelectric conversion element respectively (figure 1 items LA1, LA2, LA3, …, LA7); and

a computing device which detects a focus state of the photographing optical system by computing a correlation between a first image signal which is an image signal from the first photoelectric conversion element array and a second image signal which is an image signal from the second photoelectric conversion element array (column 3 line 9 – column 4 line68 and column 8 line 33 *et seq.*, image correlation) in accordance with a position of a focus detection area in an image sensing frame on the basis of a ratio between a shift amount of a focus detection opening pupil from an optical axis (column 3 line 9 – column 4 line 4; shifting), caused by being limited by an exit window of the photographing optical system, and a width of the focus detection opening pupil (column 2 line 58 – column 4 line 32 and column 5 line 52 *et seq.* exit pupil and area).

However, Tsunekawa et al. fails to disclose the first and second images are shading corrected images.

Murayama, on the other hand teaches that it is well known to have shading corrected images.

More specifically, Murayama teaches it is well known to have shading corrected images (column 1 lines 44 – 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Murayama with the teachings of Tsunekawa et al. because Murayama teaches in column 1 line 53 – 60 that shading correction in images will result in a smoother image.

Regarding **claim 2,** Tsunekawa et al. teaches a focus detection method (column 2 lines 50 – 57) comprising: detecting a first light beam passing through a first area of an exit pupil of a photographing optical system which is photoelectrically converted by a first photoelectric conversion element array (figure 1 item SA1, SA2, SA3, …, SA7 each receives light from PE1 of lens PE), and a second light beam passing through a second area of the exit pupil which is different from the first area which is photoelectrically converted by a second photoelectric conversion element array (figure 1 item SB1, SB2, SB3, …, SB7 each receives light from PE2 of lens PE),

wherein every two photoelectric conversion elements of said first and second photoelectric conversion element arrays include a microlens positioned such that the first light beam passing through the first area of the exit pupil and the second light beam passing through the second area of the exit pupil focuses on a first and a second photoelectric conversion element respectively (figure 1 items LA1, LA2, LA3, …, LA7); and

calculating a focus state of the photographing optical system by computing a correlation between a first image signal which is an image signal from the first photoelectric conversion element array and a second image signal which is an image signal from the second photoelectric conversion element array (column 3 line 9 – column 4 line68 and column 8 line 33 *et seq.*, image correlation) in accordance with a position of a focus detection area in an image sensing frame on the basis of a ratio between a shift amount of a focus detection opening pupil (column 3 line 9 – column 4 line 4; shifting), formed when limitation is imposed by an exit window of the photographing optical system, with respect to an optical axis, and a width of the focus detection opening pupil (column 2 line 58 – column 4 line 32 and column 5 line 52 *et seq.* exit pupil and area).

However, Tsunekawa et al. fails to disclose the first and second images are shading corrected images.

Murayama, on the other hand teaches that it is well known to have shading corrected images.

More specifically, Murayama teaches it is well known to have shading corrected images (column 1 lines 44 – 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Murayama with the teachings of Tsunekawa et al. because Murayama teaches in column 1 line 53 – 60 that shading correction in images will result in a smoother image.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunekawa et al. (US patent No. 4,647,174) in view of Murayama (US patent No. 6,192,163) and in further view of Sasakura (US patent No. 5,995,144).

Regarding **claim 3**, as mentioned above in the discussion of claim 2, Tsunekawa et al. in view of Murayama teach all of the limitations of the parent claim.

However, Tsunekawa et al. in view of Murayama fail to disclose a computer program recorded on a computer-readable medium for causing a computer to execute a focus detection method.

Sasakura, on the other hand discloses a computer program recorded on a computer-readable medium for causing a computer to execute a focus detection method.

More specifically, Sasakura discloses in column 4 lines 25 – 37 and in column 5 line 65 – column 6 line 28 that the focus detection method operation controls are sent from a medium to a processor for focusing and correcting.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Sasakura with the teachings of Tsunekawa et al. in view of Murayama to free the resources in the E^2PROM i.e. other components as taught in column 5 line 51 – column 6 line 28.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunekawa et al. (US patent No. 4,647,174) in view of Murayama (US patent No. 6,192,163) and in further view of Kaneda (US PgPub 2002/0101531).

Regarding **claim 5**, as mentioned above in the discussion of claim 1, Tsunekawa et al. in view of Murayama teach all of the limitations of the parent claim.

However, Tsunekawa et al. in view of Murayama fail to disclose that the information utilized to create the shading-corrected image signal is obtained from a digital memory in a photographing lens. Kaneda, on the other hand teaches that the information utilized to create the image signal is obtained from a digital memory in a photographing lens.

More specifically, Kaneda teaches that the information utilized to create the shading-corrected image signal is obtained from a digital memory in a photographing lens (Abstract and paragraphs 0086 - 0094 and 0121 *et seq.* memory inside lens and the shading-corrected image signal will be created when combined with Tsunekawa et al. in view of Murayama).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kaneda with the teachings of Tsunekawa et al. in view of Murayama to reduce the size of the camera unit and also to have cost reduction of the camera memory since the lens memory will hold lens information freeing up the camera memory. Also, in paragraph 0085 Kaneda teaches using the invention one can enable appropriate images to be efficiently recorded on the side of the imaging apparatus according to various performances of the imaging lens apparatus.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunekawa et al. (US patent No. 4,647,174) in view of Murayama (US patent No. 6,192,163) and in further view of Kawasaki et al. (US patent No. 5,349,409).

Regarding **claim 5**, as mentioned above in the discussion of claim 1, Tsunekawa et al. in view of Murayama teach all of the limitations of the parent claim.

However, Tsunekawa et al. in view of Murayama fail to disclose that the information utilized to create the shading-corrected image signal is obtained from a digital memory in a photographing lens. Kawasaki et al., on the other hand teaches that the information utilized to create the image signal is obtained from a digital memory in a photographing lens.

More specifically, Kawasaki et al. teaches that the information utilized to create the shading-corrected image signal is obtained from a digital memory in a photographing lens (Abstract and column 1 lines 21 *et seq.* and column 2 lines 27 *et seq.* variable lens data memory in lens and the shading-corrected image signal will be created when combined with Tsunekawa et al. in view of Murayama).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kawasaki et al. with the teachings of Tsunekawa et al. in view of Murayama because in column 2 lines 20 – 42 Kawasaki et al. teaches that using the invention provides provide a photographing lens in which lens data corresponding to various photographing conditions can be stored in a small memory thereby reducing cost and size of the system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Horaguchi (US patent No. 6,359,704) teaches image shading correction in a camera.

Kawabata et al. (US patent No. 4,346,970) teaches using a microlens to guide light to different pixels after a exit lens.

Hamada et al. (US patent No. 4,734,571) teaches using a microlens to guide light to different pixels after a exit lens.

Tokunaga (US patent No. 7,102,675) teaches using a microlens to guide light to different pixels after a exit lens.

OKISU et al. (US PgPub 2001/0033701) teaches image shading correction in a camera.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usman Khan whose telephone number is (571) 270-1131. The examiner can normally be reached on Mon-Thru 6:45-4:15; Fri 6:45-3:15 or Alt. Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Usman Khan/

/David L. Ometz/
Supervisory Patent Examiner, Art Unit 2622

Usman Khan
07/17/2008
Patent Examiner
Art Unit 2622